

FUGS 16.462 (100794-11302)
09/387,949In the Claims:

1. (presently amended) A cross-connect method for performing a cross-connect operation on a main signal including a working channel signal transmitted over a working path and a protection channel signal transmitted over a protection path, said method comprising the steps of:

retaining line setting information required for the cross-connect operation;

detecting trigger information, causing a selection of one of the working path and the protection path, for an individual channel signal from said main signal;

cross-connecting trigger information pieces detected for the individual channel signal according to ~~the~~ said retained line setting information; and

controlling the cross-connect operation ~~of on~~ the main signal based on said retained line setting information and the cross-connected trigger information pieces so that one of the working channel signal and the protection channel signal is selectively output under the cross-connect operation for the main signal, ~~wherein-whereby~~ said cross connect operation is shared for cross-connecting based on retained line setting information and said-selective outputting operation of either said working channel signal or said protection channel signal.

2. (presently amended) A cross-connect apparatus comprising:

a main signal cross-connect section for performing a cross-connect operation on a main signal including a working channel signal transmitted over a working path and a protection channel signal transmitted over a protection path;

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a memory section for retaining line setting information required for the cross-connect operation;

a trigger information detecting section for detecting trigger information, causing a selection of one of the working path and the protection path, for an individual channel signal from said main signal;

a trigger information cross-connect section for cross-connecting trigger information pieces detected by said trigger information detecting section for the individual channel signal according to the line setting information; and

a cross-connect control section for controlling the cross-connect operation of the main signal cross-connect section, based on said retained line setting information of the memory section and the trigger information cross-connected by the trigger information cross-connect section so that one of the working channel signal and the protection channel signal is selectively output under the cross-connect operation of the main signal cross-connect section, wherein said cross connect operation is shared for cross-connecting based on retained line setting information and said selective outputting operation of either said working channel signal or said protection signal.

3. (presently amended) A cross-connect apparatus according to claim 2, wherein said trigger information detecting section includes:

an alarm detection section for detecting alarm information as the trigger information for the individual channel signal in the main signal; and

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an alarm information cross-connect section for cross-connecting alarm information pieces, detected by said alarm detection section, based on said line setting information retained in said memory section; and

said cross-connect control section includes:

a switch control section for generating selection information for selectively outputting the working signal or the protection signal under the main signal cross-connect operation, based on the line setting information and the cross-connected alarm information by said alarm information cross-connect section for outputting said selection information,

said cross-connect operation for the main signal being operable to perform the main signal cross-connect operation based on said selection information output from said switch control section, wherein said cross connect operation is shared for said cross-connecting based on retained line setting information and selective outputting operation of either said working channel or said protection channel signal.

4. (original) A cross-connect apparatus according to claim 3, wherein said alarm detection section encodes said detected alarm information in accordance with a predetermined priority, and said switch control section generates said selection information based on said encoded alarm information.

5. (previously amended) A cross-connect apparatus comprising:

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a main signal cross-connect section for performing a cross-connect operation on a main signal including a working channel signal transmitted over a working path and a protection channel signal transmitted over a protection path;

a memory section for retaining line setting information required for the cross-connect operation; and

a cross-connect control section for controlling the cross-connect operation of the main signal cross-connect section, based on said line setting information so that one of the working channel signal and the protection channel signal is selectively output under the cross-connect operation of the main signal cross-connect section,

wherein said cross-connect control section includes:

an alarm detection section for detecting alarm information in the main signal; and

an alarm information cross-connect section for cross-connecting the alarm information, detected by said alarm detection section, based on said line setting information retained in said memory section; and

a switch control section for generating selection information specifying which one of the working signal and the protection signal should be selected for output under the main signal cross-connect operation, based on the line setting information and the cross-connected alarm information by said alarm information cross-connect section for outputting said selection information,

said cross-connect operation for the main signal being operable to perform the main signal cross-connect operation based on said selection information output from said switch control section, and

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wherein said cross-connect control section further includes:

a concatenation information detection section for detecting concatenation information relating to a combination of header data and subsequent data in the main signal; and

a concatenation information cross-connect section for performing said cross-connect operation on said concatenation information, which has been detected by said concatenation information detection section, in accordance with said line setting information retained in the memory section,

said switch control section being operable to generate selection information, based on said concatenation information as the result of the cross-connect operation of said concatenation information cross-connect section and said alarm information as the result of the cross-connect operation of said alarm information cross-connect section.

6. (original) A cross-connect apparatus according to claim 5, wherein said concatenation information detection section encodes said concatenation information detected by said concatenation information detection section, and said switch control section generates said selection information, based on said concatenation information, which has been encoded by said concatenation information detection section and on which the cross-connect operation has been performed by said concatenation information cross-connect section.

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7. (original) A cross-connect apparatus according to claim 5, wherein the cross-connect control section subjects said subsequent data of said concatenation information to execute the same cross-connect control as said header data of said concatenation information.